

REMARKS

Allowance of claim 16 is acknowledged with appreciation.

With regard to the only other independent claim in this application, claim 8 has been amended to clearly place it in condition for allowance.

Rejection of Claim 8

1) The examiner contends that claim 8 is unpatentable over the admitted prior art in view of United States Patent 3,794,909 to Smith and United States Patent 6,585,791 to Garito et al.

The examiner recognizes that the admitted prior art does not teach a lead-in tube connected to the aspirator via an expanded part as well as a straight lead-in tube.

For a teaching of a lead-in tube connected to an aspirator via an expanded part, the examiner relies on Garito et al.

Garito et al., as the examiner stated, discloses an apparatus comprising a suction motor (20) and an inlet tube (18), the inlet tube being connected to the apparatus using a continuously-expanding part.

2) However, as stated in Remarks submitted in an earlier response, there are important differences between the present invention of claim 8 and Garito et al.

That is to say, there are differences in the field of industrial application, the purpose of the invention and the constitution of the invention.

2.1) Field of Industrial Application

The present invention of Claim 8 relates to a sampling-type smoke detector which suctions air into a sampling tube from a monitored area and optically detects smoke particles floating in the air using a laser beam, and more particularly to a sampling tube-type smoke detector which includes a smoke detection device and an aspirator aligned in a straight line and formed compactly.

On the other hand, the technique of Garito et al. relates to a smoke evacuation apparatus designed to provide filtration and evacuation of smoke plume generated by a laser-surgical device, etc.

Therefore, there are differences in the field of industrial application with respect to whether smoke is detected or a smoke plume is filtered.

2.2) Purpose of Invention

In addition to the above, there are other differences with respect to the purpose for which the expanded part is installed.

The object of mounting the expanded part of the invention of claim 8 is to reduce air pressure loss that would result by simply connecting the lead-in tube to the aspirator, and in order to provide stable air flow to smoke sensor unit 4. This is stated in detail in the specification (page 22, line 7 - page 23, line 4 in the originally filed specification).

However Garito et al.'s input 16 (expanded part), as construed by applicant, is simply expanded for the purpose of sizing it to the filter housing 40.

Reason: In Garito et al., there is no consideration of the disadvantage of connecting the vacuum hose 18 to the suction motor 20. That is to say, Garito et al. never considered air pressure loss resulting from connecting the lead-in tube to the aspirator.

2.3) Constitution of Invention

The difference in the purpose of the invention reflects another difference in the structure of the invention.

The invention of claim 8, as amended, recites, "said lead-in tube being connected to the air inlet of said aspirator by an expanded part connected directly to the aspirator."

The apparatus of Garito et al. on the other hand, comprises a filter housing (40) between the suction motor (20) and the inlet tube (vacuum hose 18). The apparatus of Garito et al. comprises, in detail, the inlet tube (18) and the expanded part (air inlet 16) which are directly connected, in which the expanded air goes through the filter housing

(40) to the suction motor (20). Namely, the expanded part (air inlet 16) and the aspirator (suction motor 20) are not connected directly.

Therefore, the invention of claim 8 and the apparatus of Garito et al. differ with regard to whether the expanded part and the air inlet of the aspirator are connected directly or not.

3) As stated above, there are differences in the field of industrial application, the object of the invention and the constitution of the invention.

Accordingly, it is not seen that Garito et al. may be properly combined with the admitted prior art and Smith.

That is, considering the differences in the field of industrial application and the purpose of the invention, it is submitted that Garito et al. cannot be applied to the admitted prior art and Smith.

Even if Garito et al. were to be combined on some basis, the resulting combination of Garito, admitted prior art and Smith would not result in the present invention because there would still remain the difference of structure between Garito et al. and the present invention.

Therefore, it is submitted that the invention recited in claim 8 meets the requirement of non-obviousness.

Rejection of Claims 9 to 13 and 15

Per the above, it is also respectfully submitted that the inventions of claims 9 to 13 and 15 meet the non-obviousness requirement insofar as they depend directly or indirectly from claim 8.

Additional Amendment of Claim 8 regarding Iwai and Commentary

1) Amendment

In this response, claim 8 is amended by specifying a restricted aperture in an environment that clearly differentiates claim 8 over Iwai. The invention of claim 8, thus amended, recites:

"a lead-in tube arranged to convey air from said sampling tube to said aspirator through a restricted aperture," and

"said restricted aperture is arranged between said optical smoke detection device and said aspirator."

2) Remarks

Iwai's flow restriction member (11, 12) is installed between the sampling tube 1 and the concentrating detecting means (21, 22).

Therefore, there is a difference in where the aperture or the flow restriction member(s) is/are set.

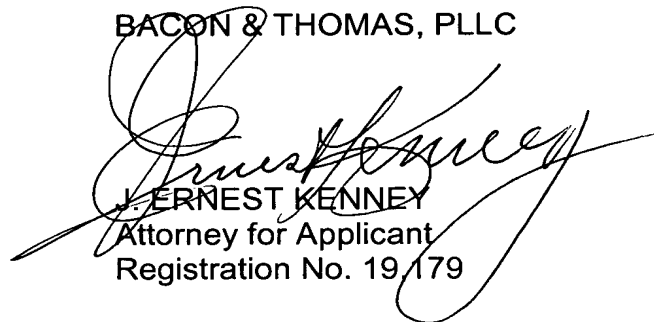
In this invention air flow is stabilized at the location of smoke sensor unit 4. Namely, by setting aperture 50 between the smoke sensor unit 4 and aspirator 2, only the flow of the mainstream section can be led to the aspirator 2 (page 24, line 19 - page 25, line 4 in the originally filed specification).

This difference, of course, further supports arguments relating to patentability of claim 8 over the other cited prior art.

In view of the amendments and comments presented herein, it is respectfully submitted that withdrawal of the rejection of claims 8-13 and 15 is warranted and the same is respectfully requested.

Respectfully submitted,

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